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Lipid and fatty acid profiles of Pseudomonas aurantiaca DNA-bound lipids determined by mass spectrometry

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Abstract

© 2015, Pleiades Publishing, Ltd. An approach used on investigation of the lipid composition of loosely (fraction 1) and tightly (fraction 2) DNA-bound lipids of Pseudomonas aurantiaca cells by electrospray ionization using mass spectrometry (ESI-LC-MS) was used for determination of the lipidome of a prokaryotic cell. Free fatty acids C16:0, C18:1 (fraction 1), C14:0, C16:0, and C18:2 (fraction 2) were detected. Both fractions of DNA-bound lipids were characterized by the presence of phosphatidylglycerol, phosphatidylserine, and lyso-phosphatidylinositol. The alcohol-soluble fraction 1 could also contain phosphatidylcholine and phosphatidylinositol, while fraction 2 probably contained triacylglycerides. Compared to gas chromatography, ESI-LC-MS provides new possibilities for investigation of the nucleoid lipidome, allowing for more detailed investigation of DNA-bound lipids in bacterial cells.

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Keywords

DNA-bound lipids, electrospray ionization, fatty acids, mass spectrometry, Pseudomonas aurantiaca